

IN THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-21 (Cancelled)

I2 Claim 22. (Currently amended) A method of making a mutant endotoxin comprising mutating an *htrB* gene ~~encoding a wild type endotoxin~~ in a wild type gram-negative bacterial pathogen, wherein the wild type pathogen produces wild type endotoxin, wherein mutating the *htrB* gene provides to provide a mutant gram-negative bacterial pathogen that produces the mutant endotoxin; wherein the lipid A of the mutant endotoxin is the same as the lipid A of the wild type endotoxin except the lipid A of the mutant endotoxin for lacking lacks one or more secondary acyl chains as compared to the of lipid A of the wild type endotoxin, and wherein the mutant endotoxin has substantially reduced toxicity when compared to the wild type endotoxin of the wild type gram-negative bacterial pathogen; and purifying the mutant endotoxin from the mutant gram-negative bacterial pathogen.

Claim 23. (Currently amended) A The mutant endotoxin made according to the method of claim 22, wherein the mutant endotoxin was purified from the ^{mutant} ~~*htrB*~~ gram-negative bacterial ~~mutant~~ pathogen by phenol-water extraction or by protease digestion.

Claim 24. (Previously presented) The mutant endotoxin according to claim 23, wherein the mutant endotoxin is conjugated to a carrier protein.

Claim 25. (Currently amended) A The mutant endotoxin made according to the method of claim 22.

Claim 26. (Previously presented) The mutant endotoxin according to claim 25, wherein the mutant endotoxin is conjugated to a carrier protein.

I2
Conf
Claims 27-28 (Cancelled)

Claim 29. (Currently amended) A method for producing endotoxin-specific antisera, the method comprising

- (a) immunizing an individual with a vaccine formulation comprising an *htrB* mutant of a gram-negative bacterial pathogen, endotoxin isolated from the *htrB* mutant of the gram-negative bacterial pathogen, or endotoxin purified from the *htrB* mutant of the gram-negative bacterial pathogen wherein the endotoxin is conjugated to a carrier protein; and
- (b) collecting antibody specific for the *htrB* mutant produced from the immunized individual;

wherein the lipid A of the *htrB* mutant endotoxin is the same as the lipid A of the wild type endotoxin except that the lipid A of the *htrB* mutant endotoxin lacks for lacking one or more secondary acyl chains as compared to the of lipid A of the wild type endotoxin.

Claims 30-31 (Cancelled)

Claim 32. (Previously presented) The method of claim 22 wherein the gram-negative bacterial pathogen is of the genera *Haemophilus*, *Neisseria*, *Moraxella*, *Campylobacter*, *Shigella* or *Pseudomonas*.

Claim 33. (Previously presented) The method of claim 29 wherein the gram-negative bacterial pathogen is of the genera *Haemophilus*, *Neisseria*, *Moraxella*, *Campylobacter*, *Shigella* or *Pseudomonas*.

Claim 34. (Cancelled)

I2
Conclude